AMENDMENTS TO THE SPECIFICATION

Please replace the third paragraph on page 21 which bridges over to page 22 with the following rewritten paragraph:

FIG. 1 is a block diagram schematically showing an embodiment of photographic processing machine applying an image reading apparatus (scanner) according to an embodiment of the present invention. FIG. 2 diagrammatically shows a schematic construction of an embodiment of an image reading apparatus according to the present invention. The image reading apparatus shown in FIG. 2 ~~simultaneously~~ reads an image on an image recording medium using a visible light and the image recording medium using an infrared light which is an invisible light as a specified detecting light for ~~of~~ a foreign matter or a scratch by simultaneous scanning them in a one-dimensional direction using the same optical path. However, the present invention is not limited to the above embodiment.

Please replace the first paragraph on page 22 with the following rewritten paragraph:

A photographic processing machine 10 shown in FIG. 1 includes a film scanner 11, an image processing apparatus 12 and an image output apparatus 13.

The film scanner 11 which is an embodiment of an image reading apparatus according to the present invention reads photoelectrically a film original which is an image reading medium. The image processing apparatus 12 which performs necessary image processing on the image thus read by the film scanner 11 and ~~which~~ detects a foreign matter or a scratch from information of the foreign matter or the scratch read by the film scanner 11, ~~and an~~ The image output

apparatus 13 has ~~having~~ a printer 21 for scan-exposing a photographic paper (light-sensitive material) in accordance with image data (exposure condition) processed in the image processing apparatus 12 and a processor 22 for performing development processing on an exposed photographic paper. A monitor 12a for verification such as a CRT monitor or an LCD monitor and an input device 12b such as a keyboard, a mouse or the like are connected to the image processing apparatus 12.

Please replace the first paragraph on page 23 with the following rewritten paragraph:

The light source lamp 111 is a lamp which emits light with a visible wavelength band and that with an infrared (IR) wavelength band simultaneously; for example, an incandescent lamp may be used ~~permissible~~; however, a ~~the~~ light source lamp which emits light of the visible wavelength band and a light source lamp ~~that~~ which emits light of the infrared wavelength band may separately be provided to be simultaneously turned on and then the resultant light having respective wavelength bands may be put in use for reading after being uniformly mixed by the mirror box 113. Or the light of the visible wavelength band and the light of the infrared wavelength band may be switched for emitting ~~or by switching one over the other therebetween~~.

Please replace the second paragraph on page 23 which bridges over to page 24 with the following rewritten paragraph:

The diaphragm 112 for adjusting a light quantity to be introduced into the mirror box 113 with respect to the light emitted from the light source lamp 111 is not limited to any particular type; however, preferably, it is of a type in which an aperture in a slit form is formed in

accordance with the line sensors 118 and 119, whereupon ~~transmitted~~ light quantity transmitting therethrough is suppressed as a slit light.

Please replace the first paragraph on page 24 with the following rewritten paragraph:

The mirror box 113 and the diffusion plate 114 uniformly diffuses light which has been emitted from the light source lamp 111 and has the light quantity thereof adjusted by the diaphragm 112. Thereby ~~and then allows~~ the resultant uniformly diffused light is ~~to be~~ incident on the film 115 with good efficiency. The mirror box 113 and the diffusion plate 114 ~~and~~ may use a conventional diffusion box, a diffusion plate such as a ground glass or the like. The diffusion plate 114 may constitute a ceiling of the mirror box 113; however, the mirror box 113 may be provided with a transparent ceiling plate and then the diffusion plate 114 may be provided thereon. The diffusion plate 114 is provided with a moving device 114a for moving the position thereof in a direction of an optical axis. Such a moving device 114a may be of a type which moves only the diffusion plate 114 or another type which moves the mirror box 113 and the diffusion plate 114 integrally.

Please replace the second paragraph on page 24 with the following rewritten paragraph:

The film 115 is scan-transported by a moving device 115a in a one-dimensional direction ~~shown as an arrow a in the figure~~ (right and left direction in the figure; hereinafter referred to as "in scanning direction") while the film 115 is being held on or by a platen, a mask or the like having an aperture in a slit form (not shown) ~~by a moving device 115a~~.

Please replace the first paragraph on page 25 with the following rewritten paragraph:

The imaging lens 116 focuses the image recorded on the film 115, that is, light which has passed through the film 115, on the line sensor 118; namely, the imaging lens 116 ~~it~~ has a function to set on the film 115 a focusing position that allows the light which has passed through the film 115 to image on the line sensor 118. In the present invention, the imaging lens 116 has both function ~~functions~~ of setting on the film the focusing position which allows the light which has passed through the film 115 to be imaged on the line sensor 119 and function of setting the above-described focusing position on the optical element such as the diffusion plate 114 in the image reading optical path. The imaging lens 116 is provided with a focusing device 116a. These both functions for adjusting the focusing position are achieved automatically by the focusing device 116a in accordance with the operator's instruction.

Please replace the second paragraph on page 25 which bridges over to page 26 with the following rewritten paragraph:

The dichroic prism 117 allows light (visible light) having ~~of a constituent with~~ a visible wavelength band of the light which has passed through the film 115 to pass therethrough and be incident on the line sensor (the 3-line CCD sensor for R, G and B) 118 while it allows light (infrared light or infrared ray) having ~~of a constituent with~~ an infrared wavelength band of the light which has passed through the film 115 to reflect thereon and be incident on the line sensor (the line CCD sensor for IR) 119; it is also called as a dichroic mirror. Though light quantity is decreased, a half mirror may be used in place of the dichroic prism 117.

Please replace the first paragraph on page 26 with the following rewritten paragraph:

The 3-line CCD sensor 118 for R, G and B scan-reads the image on the film 115 which is being transported in the ~~a~~ scanning direction a by the moving device 115a thereby obtaining image information of R, G and B; the light source 111, the diaphragm 112, the mirror box 113, the diffusion plate 114, the imaging lens and the 3-line CCD sensor 118 for R, G and B constitute ~~construct~~ a first reading device according to the present invention.

Please replace the second paragraph on page 26 which bridges over to page 27 with the following rewritten paragraph:

The l-line CCD sensor 119 for IR simultaneously scans and reads the film 115 by the infrared light emitted from the light source 111 by making use of the optical path of the visible light while the film 115 is being transported in the ~~a~~ scanning direction a thereby obtaining optical defect information (hereinafter also referred to as "first defect information") derived from the foreign matter such as the dust, dirt, grime or the like, or the scratch such as the abrasion, claw, cut or the like; the light source 111, the diaphragm 112, the mirror box 113, the diffusion plate 114, the imaging lens 116, the dichroic prism 117 and the 1-line CCD sensor 119 for IR constitute ~~construct~~ a second reading device according to the present invention.

Please replace the second paragraph on page 27 with the following rewritten paragraph:

On such an occasion (obtaining the second defect information), the detecting light needs be the invisible light, for example, the IR (infrared) light; in this case, it is preferable that the focusing position with the imaging lens 116 in which the light passing ~~passed~~ through the film 115 is imaged on the line sensor 119 is set on the film 115 by means of the focusing device 116a. ~~while~~ As ~~as~~ described above, when information (first defect information) of the foreign matter, the scratch or the like (adhering to or existing on the diffusion plate 114 or the mirror 144) which is present in the optical path of the visible light is obtained, the focusing position thereof is changed so that it is set on the diffusion plate 114.

Please replace the second paragraph on page 28 which bridges over to page 29 with the following rewritten paragraph:

When so-called prescan is performed before so-called fine scan is performed, the prescan reading ~~which reads~~ an image on the film 115 at a low resolution for setting a reading condition of the fine scan or an image processing condition, ~~is performed before so-called fine scan which~~ the fine scan reading ~~reads~~ the image on the film 115 at a high resolution for obtaining image information of R, G and B for the purpose of producing output image data through image processing is performed, it is preferable that reading of the scanner 11 for obtaining the information of the foreign matter, scratch or the like in the optical path (first defect information) is executed by the prescan; however, it may be executed by the fine scan. Whereas, it is preferable that reading for obtaining the information of the foreign matter, the scratch or the like

which is present on the film 115 (second defect information) is executed by the fine scan; however, it may be executed by the prescan.

Please replace the third paragraph on page 29 which bridges over to page 30 with the following rewritten paragraph:

In the scanner 11 shown in FIG. 2, the light source lamp 111 is disposed approximately right under the film 115 to emit light approximately right upward therefrom and the emitted light is changed by the diaphragm 112 into a slit light that is subsequently changed by the mirror box 113 and the diffusion plate 114 into a uniform diffusion light in a slit form which is then incident on the film 115 from approximately right under it; however, ~~it is permissible that,~~ as illustrated in the scanner 14 shown in FIG. 3, the light source lamp 111 may be ~~is~~ disposed such that it is shifted from the film 115 and light emitted therefrom is adjusted focuswise by the lens 142 and then reflected by the mirror 144 into a right upward direction to illuminate the film 115 as a slit light. On this occasion, it is preferable that the lens 142 and the mirror 114 are provided with moving devices 142a and 144a, respectively.

Please replace the first paragraph on page 30 with the following rewritten paragraph:

Moreover, in the scanners 11 and 14 shown in FIGS. 2 and 3 respectively, a visible light and an invisible light are separated from each other using the dichroic prism 117 and read by the 3-line CCD sensor 118 for R, G and B and the one-line CCD sensor 119 for IR, respectively; however, the present invention is not limited to the above type, but reading by a 4-line CCD for R, G, B and IR may be performed ~~is permissible~~.

Please replace the second paragraph on page 30 which bridges over to page 31 with the following rewritten paragraph:

Further, in the scanners 11 and 14 shown in FIGS. 2 and 3 respectively, the image information of R, G and B of the image on the film 115 are read by the 3-line CCD sensor 118 for R, G and B using a visible light while information of the foreign matter, the scratch or the like which is present on (adhering to or produced on) the film 115 or in the optical path is read by the 1-line CCD sensor 119 for IR using an infrared light (IR) as a detecting light; however, the present invention is not limited to the above type, but, as shown in scanner 16 of FIG. 4, ~~it is permissible that~~ not only image information of R, G and B but also information of the foreign matter, the scratch or the like may be ~~is~~ read by the 3-line CCD sensor 118 for R, G and B using the visible light.

Please replace the first paragraph on page 31 with the following rewritten paragraph:

Furthermore, it is preferable that, when information of the foreign matter, scratch or the like is read by the 3-line CCD sensor 118 for R, G and B using the visible light, the focusing position of the imaging lens 116 is changed by the focusing device 116a from on the film 115 to on the optical element, such as on the diffusion plate 114 (the mirror 144 in the case of the light source disposition as shown in FIG. 3) or the like.

Please replace the first paragraph on page 32 with the following rewritten paragraph:

In embodiments shown in FIGS. 2, 3 and 4, a relative movement of the film (original) 115 and the line sensor 118 or 119 for performing scan-reading by the line sensors 118 and 119 is performed by a method which transports the film 115 by the moving device 115a, namely, transports an original; however, this is not the sole case of the present invention. ~~, but, in~~ In a scanner 18 as shown in FIG. 5, a method of mirror scan which performs scan while the mirror in the optical path is moved.

Please replace the second paragraph on page 32 which bridges over to page 33 with the following rewritten paragraph:

The scanner 18 shown in FIG. 5 includes a light source 182 for illuminating with light a whole area of the film 115 placed on a platen 181 (transparent table for an original), a first unit and a second unit. The first unit ~~that~~ has an aperture diaphragm 183 for changing light which passes through the film 115 into the light in a slit form and a first mirror 184 for reflecting the slit light from the aperture diaphragm 183 at 90 degrees, and ~~that~~ scans the film 115 by moving in a direction of an arrow b (scanning direction) in Fig. 5. ~~,~~ The ~~a~~ second unit ~~that~~ has a second mirror 185 for reflecting the light reflected by the first mirror 184 at 90 degrees, and a third mirror 186 for reflecting the light reflected by the second mirror 185 at 90 degrees, and ~~that~~ interlocks with the first unit to move in the direction of the arrow b at half the speed of the first unit. ~~,~~ The scanner 18 further includes an imaging lens 187 for imaging the light reflected by the

third mirror 186, a dichroic mirror 188 for separating the visible light and the infrared light from each other by reflecting the visible light and allowing the infrared light to pass therethrough, the 3-line CCD sensor 118 for R, G and B which is disposed in a focusing position of the imaging lens 187 and which reads the visible light reflected by the dichroic mirror 188 and the 1-line CCD sensor 119 for IR which is also disposed in a focusing position of the imaging lens 187 and which reads the infrared light passing through the dichroic mirror 188.

Please replace the first paragraph on page 33 which bridges over through page 35 with the following rewritten paragraph:

Next, the image processing apparatus 12 comprises a frame memory 31, a first detecting section 32, a second detecting section 33 and an image data processing section 34.

The first detecting section 32 ~~that~~ stores image information of R, G and B and foreign matter/scratch information (first and second defect information) ~~of image information of R, G and B,~~ such as image information of IR ~~or the like~~ which are read by the scanners 11 (14, 16 and 18).~~,~~ The ~~a~~ first detecting section 32 ~~that~~ reads digital data which are the foreign matter/scratch information (first defect information) ~~of the image information~~ of IR, image information of R, G and B ~~or the like~~ stored in the frame memory 31 to detect at least one image data defect (first image data defect)of the foreign matter which adheres and the scratch which exists in the optical path of the visible light on the basis of ~~continuity of~~ the light quantity data changes in the scanning direction from the thus read digital data.~~,~~ The ~~a~~ second detecting section 33 ~~that~~ reads digital data which are the image information of IR , namely, the foreign matter/scratch

information (second defect information) stored in the frame memory 31 to detect at least one image data defect (second defect of image data) of the folding mark, foreign matter, and scratch which exist on the film 115 on the basis of light quantity changes from the thus read digital data.~~,~~ ~~and~~ The ~~an~~ image data processing section 34 ~~that~~ reads the image information of R, G and B stored in the frame memory 31 and performs various types of conventional image processing. ~~or,~~ When ~~when~~ the second defect of the image data such as the folding mark, foreign matter, the scratch or the like is detected by the second detecting section 33, defect correction processing (so-called scratch vanishing processing) which corrects the thus detected second defect using image data of the peripheral pixels thereof is performed to produce output image data.

Please replace the first paragraph on page 35 with the following rewritten paragraph:

The first detecting section 32 reads the foreign matter/scratch information (first defect information) which have previously been read by the 1-line CCD sensor 119 for IR in the cases of the scanners 11, 14 and 18 shown in FIGS. 2, 3 and 5, respectively or by the 3-line CCD sensor 118 for R, G and B in the case of the scanner 16 shown in FIG. 4 and stored in the frame memory 31, obtains a light distribution of the thus read image data.~~,~~ The first detecting section 32 continuously detects the light quantity data changes in the scanning direction in a given specified sensor position (specified position in a direction perpendicular to the scanning direction) of the 1-line CCD sensor 119 for IR or the 3-line CCD sensor 118 for R, G and B, namely, detects a changed portion of the light quantity data in a streak form, thereby to detect

defect (first defect) of image data derived from the foreign matter which adheres or the scratch which exists in the optical path.

Please replace the second paragraph on page 35 which bridges over to page 36 with the following rewritten paragraph:

It is conceivable that the foreign matter such as the dust or the like adheres in the optical path, for example, to the optical element (such as the diffusion plate 114, the mirror 144 or the like) in the optical path while the film 115 is being read by the scanners 11 (14, 16, 18 and the like). On this occasion, abnormality of light quantity data in a streak form is produced in a given specified sensor position of the 1-line CCD sensor 119 for IR or the 3-line CCD sensor 118 for R, G and B during ~~from the middle of~~ scanning in the same way as described above. Therefore, ~~To deal with this problem,~~ the first detecting section 32 detects abnormality of light quantity data in a streak form, whereby ~~the~~ first defect of the image data caused by the foreign matter such as the dust or the like which adheres in the optical path during the reading operation can be detected ~~is located to detect the problem~~. Moreover, such detection of the first defect of the image data caused by the foreign matter such as the dust or the like which adheres in the optical path during the reading operation can also be performed by the second detecting section 33, though the detection accuracy is not high.

Please replace the second paragraph on page 36 which bridges over to page 37 with the following rewritten paragraph:

On this occasion, the scanners 11 (14, 16 and 18) and the first and second detecting sections 32 and 33 constitutes ~~construct~~ the image recording apparatus according to the present invention.

Please replace the first paragraph on page 37 with the following rewritten paragraph:

In the case that the second defect of the image data such as the foreign matter, the scratch or the like in the optical path is detected by the first detecting section 32, when the image information of R, G and B are read by the 3-line CCD sensor 118 for R, G and B, the optical element in the reading optical path is shifted in a direction of the optical axis.~~,~~ For ~~for~~ example, in embodiments shown in FIGS. 2 and 4, the position of the diffusion plate 114 is moved in a direction of the optical axis by the moving device thereof 114a.~~,~~ ~~or~~ In ~~in~~ an embodiment shown in FIG. 3, the positions of the mirror 144 and the lens 142 are moved in a direction of the optical axis by the moving devices thereof 144a and 142a, respectively, to blur the foreign matter or scratch which is present on or adheres to the optical element thereof. ~~whereupon,~~ When ~~when~~ the image information of R, G and B of the film 115 are read, an influence of the first defect of the image data (first defect information) derived from the foreign matter or scratch on ~~imparted to~~ the image information of R, G and B (image data) can be removed or lessened.

Please replace the second paragraph on page 37 which bridges over to page 38 with the following rewritten paragraph:

By means of such ways described above, the foreign matter, scratch or the like which adheres to or exists on the optical element in the optical path or the image recording medium such as the film 115 or the like can be detected; as a result, output image data which is free from the influence or has a less ~~decreased~~ influence, of the first defect derived from the foreign matter, scratch or the like in the optical path can be outputted from the image processing apparatus 12. ~~or in which~~ Further, output image data can be outputted from the image processing apparatus 12 in which the second defect derived from the foreign matter, scratch or the like on the image recording medium such as the film 115 or the like is corrected or changed to be less conspicuous ~~can be outputted from the image processing apparatus 12~~.

Please replace the first paragraph on page 38 with the following rewritten paragraph:

The output image data which has thus been outputted from the image processing apparatus 12 and which is free from the influence, or has the less ~~decreased~~ influence, of the first and second image defects is inputted into the image outputting apparatus 13.

Please replace the third paragraph on page 38 which bridges over to page 39 with the following rewritten paragraph:

The thus produced finished print can be a print reproducing a high-quality image that is free from the influence, or has the less ~~decreased~~ influence, of the foreign matter which adheres to or the scratch which exists on the optical element in the optical path or the image recording medium such as the film or the like.

Please replace the third paragraph on page 40 which bridges over to page 41 with the following rewritten paragraph:

As a result of the above analysis, when abnormality (of light quantity) in a streak form (first defect of image data) which is conceivable to have been produced by the presence of the foreign matter/scratch in the optical path within the scanner 11 is noticed in the IR prescanned image sent from the scanner 11 (judgment "Y" in a step 123), processing advances to a step 124 and then, for example, a countermeasure is taken such as changing a position of the diffusion plate 114 by the moving device 114a or otherwise which allows the foreign matter/scratch to be less conspicuous ~~is taken~~.

Please replace the first paragraph on page 41 with the following rewritten paragraph:

When the judgment in the step 123 is "N", namely, abnormality (of light quantity) in a streak form which is conceivable to have been produced by the presence of the foreign matter/scratch in the optical path within the scanner 11 is not noticed, processing advances to a

step 125. In the step 125, ~~in which~~ respective fine scan of R, G, B and IR are performed to obtain respective image data and then, IR image information (image data) from among the thus obtained respective image data is analyzed in the second detecting section 33 to detect the foreign matter/scratch. ~~and,~~ Thereafter ~~thereafter~~, on the basis of the obtained R, G and B image data, necessary processing, for example, a foreign matter/scratch correction, various image processing and the like are performed.

Please replace the second paragraph on page 41 which bridges over to page 42 with the following rewritten paragraph:

More specifically, it is preferable that the respective prescan of R, G, B and IR in the step 121 are performed, for example, by using a sensor block constructed as described below. The sensor block which constitutes ~~constructs~~ the scanner 11 is such that respective line sensors 118R, 118G, 118B and 119 for R, G, B and IR are integrally constructed, for example, via a dichroic prism 117 as shown in FIG. 8.

Please replace the first paragraph on page 42 with the following rewritten paragraph:

In a state as shown in FIG. 8, an area on the diffusion plate to be read by the line sensor 119 for IR is limited within a small area, for example, as shown by an arrow Q in the figure. On this occasion, the area to be read can be adjusted, if necessary, such that a pair of the dichroic prism 117 and the line sensor 119 for IR ~~make a pair (allowing no relative displacement between them) to~~ move their positions with respect to the line sensors 118 for R, G and B (allowing no relative displacement between them).

Please replace the first paragraph on page 45 with the following rewritten paragraph:

Moreover, when an auto-setup operation is executed using prescanned image data to set a table for use in color temperature conversion of the image data, the foreign matter/scratch may cause a detrimental influence in some cases. For example, in a negative image, the foreign matter may erroneously be evaluated as a highlight in the image thereby causing a risk of performing an abnormal setting. To deal with this problem, it is preferable that the auto-setup is executed by using the prescanned image data obtained in a state that the foreign matter/scratch is not present in the optical path and/or on the film or in a state that the prescanned image data obtained is corrected, if such foreign matter/scratch is present~~, after it is adjusted~~.

Please replace the first paragraph on page 45 with the following rewritten paragraph:

As described above in detail, according to the present invention, the film reading method which reads the image on the image recording medium such as film or the like by the visible light, prevents the foreign matter, scratch or the like on the image recording medium and in the reading optical path of the image recording medium from being transferred onto the print image through detecting at least the foreign matter, scratch or the like in the reading optical path of the image recording medium by the specified detecting light, preferably, the invisible light. ~~and~~ The film reading method can obtain a high-quality print image, and the image reading apparatus executing the method can be achieved.